

**WHAT IS CLAIMED IS:**

1. A method for synchronizing motions realized in a game system including dance games played through cooperation between players, wherein:
  - 5 if, with respect to an event input by one player during any one of unit times when progress is repeated in synchronization with a standard time, another player inputs the same event, a unit motion corresponding to the input event is simultaneously represented through the structure during a subsequent unit time.
- 10 2. The method as claimed in claim 1, wherein the cooperative game system is implemented in the form of a single system.
3. The method as claimed in claim 1, wherein the cooperative game system is implemented in the form of a remote client system over a network.
- 15 4. The method as claimed in any one of claims 1 to 3, wherein the event is input by one or a combination of a keyboard, mouse, trackball, joystick, touch screen, cellular phone key pad, dance pad, and network interface card (NIC).
- 20 5. The method as claimed in any one of claims 1 to 3, wherein the event is input by a direct action input device with cameras or sensors and a voice input device such as a microphone.
6. The method as claimed in any one of claims 1 to 3, wherein the standard time is set as a world time code (WTC).
- 25 7. The method as claimed in any one of claims 1 to 3, wherein the unit motion is set while storing frame vertex positions and data that correspond to respective motion scenes and producing data through interpolation calculations.
- 30 8. The method as claimed in any one of claims 1 to 3, wherein the unit motion is set while

dividing the structure into several substructures, defining each relationship for the substructures, and producing data by specifying data for the divided substructures every frame or varying frame.

9. The method as claimed in any one of claims 1 to 3, wherein the unit motion is set while  
5 producing data through movement along position values in a hierarchical structure that defines respective relationships based on structure data of a joint unit called a bone.

10. The method as claimed in any one of claims 1 to 3, wherein the unit motion additionally  
10 use sound and is displayed in synchronization with the sound.

11. The method as claimed in claim 10, wherein the sound is one of WAV, MP3, WMA or  
MIDI format.

12. The method as claimed in claim 10, wherein the unit motion is displayed in  
15 synchronization with a standard time, the standard time being set in conformity with a playing time of the sound.

13. The method as claimed in any one of claims 11 to 13, wherein the unit motion is  
20 outputted and displayed via an image output device and a sound output device.

14. The method as claimed in claim 13, wherein the image output device is any one of a  
monitor, a head up display device (HUD), or an LCD panel.

15. The method as claimed in claim 13, wherein the sound output device is a speaker.  
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16. The method as claimed in claim 1, wherein the image output device confirms  
input/output intermediation states via a solid object based on transmission and reception to and  
from the solid object.

17. A method for implementing interactions between a plurality of cooperative game  
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systems generated in a course of individually realizing unit motions of each of the cooperative game systems by applying the method for synchronizing motions in the cooperative game system of claim 1, wherein:

5 if, with respect to an event input by one player during any one of unit times when progress is repeated in synchronization with a standard time, another player inputs the same event, each cooperative game system realizes a unit motion corresponding to the input event through the structure during a subsequent unit time, and at the same time, allows interactions generated by an individual unit motion implemented on each cooperative game system to be represented as a new unit motion by applying the method for synchronizing motions in the  
10 cooperative game system.

18. The method as claimed in claim 17, wherein the standard time is set as a world time code (WTC).

15 19. The method as claimed in claim 17, wherein the plurality of cooperative game systems are implemented in the form of server/client by one server system and a plurality of client systems.

20 20. The method as claimed in claim 17, wherein the plurality of cooperative game systems are implemented in the form of peer to peer by a plurality of client systems.

21. The method as claimed in claim 20, wherein the peer-to-peer form is serviced via one or a combination of an information sharing types and resource sharing types.

25 22. The method as claimed in claim 20, wherein the peer-to-peer form uses one or multiplicity of scripts such as Ping, Pong, Query, Queryhit, Push, and the like.

30 23. The method as claimed in claim 20, wherein the client system includes a video game machine such as PS2, XBox, GameCube, PSP, PSX, N-Gage, Nintendo DS and the like in which an on-line or two-person game is possible with a separate memory.

24. A method for a cooperative game including dance games applied with the method for implementing interactions between a plurality of cooperative game systems generated in the course of individually realizing unit motions of each of the cooperative game systems by applying the method for synchronizing motions in the cooperative game system of claim 1, wherein:

if, with respect to an event inputted by one player during any one of unit times when progress is repeated in synchronization with a standard time, another player inputs the same event, each cooperative game system realizes a unit motion corresponding to the inputted event through the structure during a subsequent unit time, and at the same time, plays the game while allowing interactions generated by an individual unit motion implemented on each cooperative game system to be represented as a new unit motion by applying the method for synchronizing motions in the cooperative game system.

25. The method as claimed in claim 24, wherein the unit motion has a first pose and a last pose matched to each other.

26. The method as claimed in claim 24, wherein the unit motion has a playing time that is adjusted by tempo.

27. The method as claimed in claim 24, wherein the unit motion includes movements in eight directions of front, back, left, right, front-left, front-right, back-left, and back-right.

28. The method as claimed in claim 27, wherein the unit motion includes 90° rotation, 180° rotation, 360° rotation, and a special unit motion.

29. The method as claimed in claim 27, wherein the unit motion includes sitting, standing, bending, and successively rotating.

30. The method as claimed in claim 27, wherein the unit motion includes joints constituting

a structure and motion modifications by the joints.

31. The method as claimed in claim 27, wherein the unit motion has as one unit several joints constituting a structure and several combinations of a plurality of motions by the joints.

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32. The method as claimed in claim 30 or 31, wherein processing is made with a temporal effect by a mechanical control in a controller, or a spatial and physical effect such as a drag force and action/reaction upon controlling structure motions.

10 33. The method as claimed in claim 24, wherein the event is input by one or a combination of a keyboard, mouse, joystick, key panel, dance pad, and network interface card (NIC).

34. The method as claimed in claim 24, wherein the event is such that position values input via various sensors or cameras are input as motion data.

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35. The method as claimed in claim 24, wherein the structure is a two or three-dimensional object.

20 36. The method as claimed in claim 35, wherein the object is implemented by a combination of an object made based on images input via cameras or the like, and an actual image.

37. The method as claimed in claim 24, wherein the structure is an avatar made by a separate modeling tool.

25 38. The method as claimed in claim 24, wherein the system includes a separate chatting tool to exchange conversation with a party system by means of character or voice systems.

30 39. The method as claimed in claim 24, wherein the system includes a video game machine such as PS2, XBox, GameCube, PSP, PSX, N-Gage, Nintendo DS in which an on-line game or a two-or-more person-game is possible with a separate memory.

40. The method as claimed in claim 24, wherein the unit motion is played by two persons like a sports dance.

5 41. The method as claimed in claim 40, wherein the sports dance is played as one or combination of waltz, tango, fox trot, Vienna waltz, quickstep, jive, rumba, chachacha, samba, passodobbele, and blues.

10 42. The method as claimed in claim 24, wherein the unit motion is made by one or combination of swing, salsa, disco, twist, mambo, hip-pop, synchronized swimming, and ice dancing.